

“Students Need A Windows Experience.”

We **firmly** believe that having Windows experience available for students is worthwhile – just like offering an optional course on Driver-Ed is worthwhile.

But *wait just a minute now*. Aren't the people who are saying, “students need a Windows experience”, the same people who are saying that PCs and Macs are identical??? Well then, using a Mac will give them their Windows experience!

Oh, you want even more than that? OK, then, let's do it.

First of all, this argument's most popular version is *“Our schools should be using Windows/PCs since the majority of businesses use Windows/PCs.”*

Pertaining to this line of thinking, one insightful correspondent wrote: *“As phrased, that statement cannot satisfactorily be responded to, since it is really asking ‘why shouldn't we do what everyone else does?’ The idea of not ‘doing what everyone else does’ frequently elicits tension among groups of Domesticated Primates. So the ‘argument’ represented is actually sub-rational, thus less susceptible to purely rational counter arguments... I can't help but hear my mother saying ‘if all your friends jumped off a roof...”*

Dr. Frank Lowney, director of [Electronic Instructional Services](#) wrote me: “Your Mac vs PC site contains the most succinct rebuttal of the Windows mythology I've yet seen. Good work... The underlying theory (parallel training) is that the training environment should parallel the application (work) environment as closely as possible. **There are several horrific and unexamined assumptions embedded in this theory.**”

Here are ten (10) reasons why this PC thinking is seriously flawed:

[Reason 1: Schools have a different objective](#)

By and large, a typical business compares to a typical school like this:

Business	School
adults	children
get paid to work	pay (taxes) to be educated
all year long	part of the year
one supervisor	multiple supervisors (teachers)
providing a service (or product)	receiving a service
to generate a profit	to learn

HUGE Differences!

Regarding computers, there is a twofold objective for having technology in the classroom:

- 1) to educate students **about technology**, and
- 2) to educate students **how to use technology in learning**.

Both of these are much more fundamental – **and important** – than teaching them how to use Windows.

Learning **about** technology is learning the **mechanics** and **concepts** (i.e. how to take care of a complex piece of electronics; developing keyboarding competence; understanding word processing, spreadsheets, charts, multimedia, the Internet, etc., etc.). In short, part one of the school's technology job is to help students understand the computer's capability as a powerful tool, and to be *comfortable* with it.

None of these skills are platform dependent – other than they ALL have been demonstrated to be easier to learn on a Mac! [E.g. reference the very detailed [IDC report](#) (PDF)].

Learning **how to apply the computer tool** is the next important, logical step. Here the school gets into things like **problem analysis** and **creativity**. This phase is especially significant, as **imaginative uses** of software applications (vs all students doing the same thing) is what leads to **real learning**. In short, part two of the school's technology job is to help students utilize the computer in everyday life. And Macs do this better too (e.g. read [this](#), and our more detailed [discussion](#) of this issue).

[As an aside, there is good evidence that most school districts are also **not** doing a good job of teaching the teachers about computers. Read this excellent article from the *Educational Technology Journal* titled [How Teachers Learn Technology Best](#).]

This 2004 [report](#) (written by a district's Teacher of the Year) says "I write an educational tech column. I try to be professional and objective about it, but I just keep coming around to two basic facts: The no-Mac rule in my district is being implemented without regard to educational consequences because teachers were not consulted about it; and any proposed cost savings from going to a single Wintel platform have yet to be detailed to us." ... Here is a two-part [article](#) about what some other teachers had to say.

Here are just three out of hundreds of similar emails I have received on this aspect:

"In the last few years I've been noticing that many students, in order to answer a question, almost immediately start uttering many different, mutually incompatible responses. It resembles, strikingly, the behavior of the average windowze user, who keeps clicking everywhere until something satisfying happens.

On a broader sense, I have the impression that the average windowze user is intimidated and frustrated by their previous failures, so that, in many cases, they do not 'strive for perfection' but stop as soon as a reasonably decent result is achieved, well conscious of the fact that, as we say in Italy, '**Better is the worst enemy of Good**'."

– Andrea Perego, Nuclear Physicist, University of Florence, Italy.

"I am an applications engineer/ instructor, I have been using computers for the last 15+ years. I work with: Unix, Macintosh OS, and Windows NT. One of my past job responsibilities was working as a computer advisor at a large Florida University. I worked with students and faculty, using various applications. **"I found that it was easier to teach students on the Macintosh platform than on the Windows/PC. The Mac ALWAYS appeared to be less intimidating when instructing the students."**

"I am currently the **technology director** at Lumpkin County (GA) Schools. 15 years ago I was assistant superintendent for Lumpkin County Schools and left that position to be the Director of a regional Dept of Education Technology Training Center. In 1994 I developed the [Georgia State Report Card](#).

"While director of the training center I noticed that the **Mac schools were getting connected to the web much faster and easier, they were running many more applications, and media persons (not IT experts) were managing networks. At the same time, the PC schools were still trying to print.**

"When I looked at the schools in Georgia, and the schools that were more the 50% Mac, these are typical of the results I found:

"3rd grade ITBS composite scores:			
Mac Schools 58.39	Windows Schools 53.63	State 54.1	
"8th grade ITBS composite scores:			
Mac Schools 55.83	Windows Schools 52.79	State 53.2	

"As you can see the **Mac Schools are above the state average and the Windows schools are below the state average.** To me this says that **students learn better on Macs."**

Conclusion: Macs do the best job for what schools are really there for – LEARNING.

Reason 2: School computer users' needs differ from those of business users

Although most people are probably not aware of it, students in school have **much higher technology requirements** than typical business users do!

Studies have shown that the average business user works with only three or four rather basic applications (e.g. MS Office, Internet Explorer). The net affect of this is that a business user can get by with a very basic computer.

On the contrary, the typical student computer user is involved in six plus applications, which are usually more demanding computerwise (like video and multimedia authoring). Students, after all, are **learning**. **This means that they are exploring the limits of technology.** The net affect of this is that a school user needs a technologically **advanced** computer – or their learning experience will be significantly stifled. (One of several articles on this topic is: [Children Are Power Users](#).)

Conclusion: Schools need high-end computers, and Macs are the most technologically advanced computer choice – in all price ranges.

Reason 3: Schools and businesses have different security issues

Another detail not usually considered, is that in a normal business setting, each person has their own computer. (It would be rare that a computer would be shared by two employees.) Security concerns are then primarily **between different computers**.

In a school environment, the situation is **completely the opposite**. Almost every computer is shared by MANY users (e.g. students) throughout the day. Furthermore, they may well be simultaneously working on very different types of projects, requiring a wide range of applications. This means that in addition to the standard security concerns **between** different computers, schools now have to deal with security concerns **within each computer**, between different users of that computer.

So what? Again, the more sophisticated, flexible and secure computer would be the most desirable. Macs are not only easier to customize, but they have more secure multi-user settings built in. For more info take a look at our brief [discussion](#) of this issue, and also our [references](#) to articles about Windows XP security.

Surprised? Don't be. According to this [Tech News article](#), security issues are inherent to how Microsoft has set up Windows, and it will not get much better in the near future.

Conclusion: Schools need high end, secure computers, and Macs are the most technologically advanced and virus-free computer choice.

[Reason 4: Who knows what businesses will use in the future?](#)

It will be some seven years from now that the average K-12 [Kindergarten through 12th grade] student will graduate from high school. Based on the rapid pace of computer evolution, it is more than presumptuous to say that Windows experience will be a job "requirement" in seven years.

In fact, let's go back seven years, to 1998. Which sixth grade student from 1998 would now be the more computer-qualified employee: one who learned Windows 98 or one who learned the Mac OS?

The answer is the one who learned Mac OS. Why? **Because Windows XP is more like what the Mac OS was in 1998 than it is to Windows 98!**

Every indication says that this trend will continue: the Mac will have hardware and software innovations and the Windows/ PC assemblers will try to copy them.

(If you were absolutely forced to make a bet on what would be a requirement in seven years, putting your money on UNIX would be a safe call. Surprise! That's what Mac OS X is based on. For more info take a look at our [discussion](#) of Mac OS X.)

Here's is an abbreviated example of one of the many emails I received on this topic:

"If you look back 10 to 15 years at what computing looked like, it was arcane – except for the Mac. In fact, essentially every innovation Apple has ever marketed eventually became the standard. If you want kids to be prepared for tomorrow's mass-market computer technology, expose them to Apple's technology today. (Take a look at Windows XP. Microsoft didn't even try to hide how much they have copied the Mac OSX's interface.) Some examples of Macintosh firsts followed later by PC's:

- Mice
- 3.5" Floppies
- Graphical Window-based environments
- Vectorized Graphics and text (Postscript)
- Desktop Publishing; Networked Laser Printers
- Hyperlinks
- Microsoft Word; Microsoft Excel
- Built-in Networking
- Built-in Ethernet
- Peer to peer file Sharing
- Dial up remote access
- LCD Monitors
- Built-in CD-ROM
- Built-in wireless networking
- Firewire (IEEE 1394)
- Renaissance; Rendezvous
- and MANY others.

"And lets not forget that the WEB was basically invented on a NeXT computer – and the NeXT OS is the core of Mac OSX..." Go [here](#) to see a much more comprehensive listing of Mac innovations, which isn't even up-to-date.... Read this interesting [comparison](#) showing how some key aspects of the Mac and Windows operating systems evolved.

Conclusion: the best way to insure that today's sixth grader will be computer competent in 2012, is to have him learn on the latest Mac OS.

Reason 5: Schools have more financial constraints than businesses do

In particular, schools cannot afford the luxury of having a large support staff. In the business world, numerous studies have shown that the support costs alone are typically **four times greater for Windows/PCs than for Macs.**

Why? Because Windows/PCs are more complicated and problematic. (For thorough evidence of how this is so, see the [Norris and Wong report](#)). Even though this analysis is a few years old, the same relative situation exists today.

How about one more example to ponder: what business has the **best, most expensive PC technical support staff in the world?** Microsoft! Here is a [QuickTime movie](#) that shows Bill Gates himself not being able to get a peripheral to work on his Windows/PC... Genuine plug-and-play is one of the several major advantages the Mac has over Windows/PCs.

A school district technology director wrote me: "We have installed 5 iMac Labs, 2 wireless iBook labs, one Gateway lab, and one Dell Lab in the new high school. The five iMac labs have an OS X Server that is being administered by the teachers. The teachers are using Apple Network Assistant and they love it. You can shut down the lab with 2 key strokes, view what students are doing, send them messages, take control of their computer, etc.

"The Gateway lab costs 5 times what the iMac lab does... The teacher can not administer the NT server in this lab... The Dell lab cost almost three times the iMac labs and the software was to be installed by a vendor..."

For a more detailed discussion of other reasons why Macs cost less, see our [cost page](#).

Conclusion: Since school districts are very cost conscious, they should buy a quality computer with the lowest Total Cost of Ownership – a Mac.

Reason 6: Using Macs means less competition for IT/MIS personnel

A Miami correspondent made a good point that is not often considered (until it's too late). He writes: "One of the downsides in exclusively supporting the same platform that is used by the majority of businesses, is that it puts the school district in direct competition with local businesses for IT/MIS employee retention.

"I know of no school district that can afford the going rate for IT/MIS professionals. So why do they insist on supporting a platform that increases their need for support AND puts them in direct competition with the private sector?"

"Local businesses may push school boards to standardize on the PC platform, since it reduces their training costs by hiring away the school's IT/MIS people."

"If a school district standardized on (and actively supported) the Macintosh platform, the district would have a higher chance of retaining employees because they would be attracting people who are there BECAUSE they want to work with Macs."

And just to show that this reality has also reached the other coast, in a 2001 U.C. Berkeley [White Paper](#) they say that it is "easier to hire and retain Mac-oriented technical staff, possibly due to the lack of competition from the business world."

Of course, Macs open up one other interesting possibility: for many situations you may not need an IS person at all! Here is a [site](#) that helps answer any question about setting up and maintaining an OSX lab. (Of course this is the exact reason why many IT/MIS people are anti-Mac. See more [here](#).)

Conclusion: Standardizing on Macs should result in higher IS employee retention.

Reason 7: Copying businesses will result in schools experiencing the same problems that businesses have

This September 2003 [article](#) in the *St Petersburg Times* says it well – and humorously.

One of the many emails I have received on this item says it all:

“...More institutions are using Macintosh computers as they are harder to hack into. I work for the Federal Reserve Bank system and we are using Macs to keep hackers out. Plus, we have NO down time for viruses. We constantly have problems with the PC computers here in the Fed.”



**Be Careful What You Ask For –
You May Just Get It...**

The FACT is that, by design, [Macs Are Inherently Safer](#) and more secure than Wintel machines. The critically key word is INHERENTLY. In fact the conclusion among industry professionals is reflected in the title of this October 2003 story " [Windows Is More Flawed Than Ever.](#)"

Conclusion: Schools have enough issues of their own to handle without asking for more.

Reason 8: There are MANY businesses using Macs

The “needs Windows” argument also assumes that all businesses use Windows PCs. **False.** There are **tens of thousands** of businesses using Macs in the US (and throughout the world) – in ALL fields.

As I noted on the introduction page, just in my little Mac consulting business I have customers who are doctors, lawyers, retailers, restaurant operators, construction contractors, wholesalers, manufacturers, real estate brokers, public relation firms, etc. For the most part these companies **exclusively use Macs to run every aspect of their business.**

Since there are WAY too many businesses to list here, read about this one representative example. According to a current American Bar Association [survey](#), **Mac usage in US law firms has increased by some 250% from 1998 to 2001.** They also report that between 30% and 40% of law students use Macs. These are hardly trivial numbers. This 2004 [report](#) says that “Macs are becoming a familiar sight in law offices.”

In fact if you extrapolate the increase in Mac usage in law firms over the next thirteen years (when the average current K-12 student will get their law degree), Windows PCs will have long since been out of the picture!

Exactly why would a business use Macs? Read what this company [says](#). They cover a whole gamut of reasons... Here is a [Fortune article](#) discussing why many small businesses are switching to Macs... And a May 2003 CNET [story](#) touches on similar reasons.

This 2005 [report](#) says "How often does a non-media, non-graphics business go ALL Mac? More often than you think. Here is the story of a Washington state CPA firm that's now all Mac, all the time."... This 2004 [piece](#) says that "cost is a compelling reason" for any business to consider the switch... And this [article](#) says that "Macs are superior in the workplace."

This story in the [Boston Globe](#) interviews several scientists who are relating why Macs are becoming very popular in the scientific and engineering community... *Bio IT-World* [says](#) "life science is Apple's fastest-growing business market."...OK, I could go on here, but just one more. This *USA Today* [story](#) explains why Macs are an ideal business computer.

Conclusion: There are many, diverse businesses that DO use Macs – and with Macs now being UNIX based, more businesses will be using Macs in the future.

[Reason 9: Macs CAN provide a Windows experience](#)

Giving students (grades 11 or 12) the option to have some Windows experience makes good sense.

Note that in our discussion here, it is not so much the computer (hardware) that we are referencing: this is a S-O-F-T-W-A-R-E issue. The software in question is: **1)** the operating system [OS], and **2)** business applications.

Regarding the OS, some PC advocates insist (incorrectly) that the Windows operating system is just like the Mac OS. (Although it is a copy, it is a poor one. See our detailed [discussion](#) debunking this idea.) In any case, (as we said at the top of this page) if they **really** believe their own argument, then teaching a student on a Mac will give them a Windows experience. In fact, with later versions of Virtual PC (a Microsoft product), there are those who contend that *Windows operates BETTER on a Mac!* See this [Wired story](#) as an example. (And here is just [one](#) of several [lower-priced] alternatives to Virtual PC on the Mac.)

Please make sure that you understand this point: with Virtual PC, **Macs can run up to ELEVEN different operating systems... and at the SAME TIME!!!**... And, *without* Virtual PC, [this](#) shows you how a creative individual got **FIFTY-FIVE** operating systems to work on his Apple Powerbook!

Clearly the better solution is to teach Windows on Macs running the inexpensive Virtual PC program. This has the benefits of: **a)** providing true Windows activity, while **b)** maintaining all the benefits of owning and operating a Mac. This option also gives students the opportunity to move and translate documents between platforms – on one computer.

Just in case you may think that I am overstating the ease of transition here, please refer to Microsoft's own [Mac Compatibility Center](#) website, which says: "Those who have had little or no exposure to Windows but have worked with the Macintosh operating system will find themselves at home with a minimum of retraining." They should know since they make both Windows *and* Virtual PC.

Furthermore, when laypeople talk about businesses wanting students to have "Windows experience", what they are *really* saying is that businesses need students who have experience with Windows **applications** – like Word, Excel, Photoshop, etc. Essentially **ALL major applications have always been cross-platform**. (In fact several – like Ms Word and Ms Excel – actually **STARTED** on the Mac.)

Regarding their business applications, Microsoft has fully committed to Mac software products like MS Office. For example, here is their site about [Office 2004X](#), which has features not available on the Windows version. The result is that files and functionality (and associated learned skills) are **totally** interchangeable between the platforms. (Read this January 2004 [article](#) as an example of Microsoft's commitment to the Mac.)

Lastly, the majority of businesses are becoming more Internet oriented – and the Internet is entirely **platform independent**.

You might want to read a discussion of what one Wyoming school district calls [buying two platforms for the price of one](#) (using Macs) which turned out to be **“the most cost saving ingredient in the district’s technology plan.”**

Conclusion: teach Windows by having a lab of Macs in high school with Virtual PC on them.

Reason 10: What businesses really want

Ask any experienced employer what are the MOST important things that they are looking for in an employee, and they will say: **dependability, integrity, good work habits, flexibility, willingness to learn, good communication skills**, etc.

The importance of having Windows familiarity would be WAY down on the list – if it were on it at all. So if schools wish to provide the best employees for businesses, they ought to focus on assuring that ALL of the **really important** items are met before worrying about an incidental like Windows experience.

An educator wrote that these are some of the terms fellow educators would like to use to describe their students. Notice that **none** of them refer to actual computer programs or platforms.

Creative and effective users of productivity tools,
Communicators,
Collaborators,
Decision-Makers,
Continuous Learners,
Problem Solvers,
Information Seekers,
Analyzers,
Evaluators.

Read what this investigator [wrote](#), about a year after I published the prior three paragraphs:

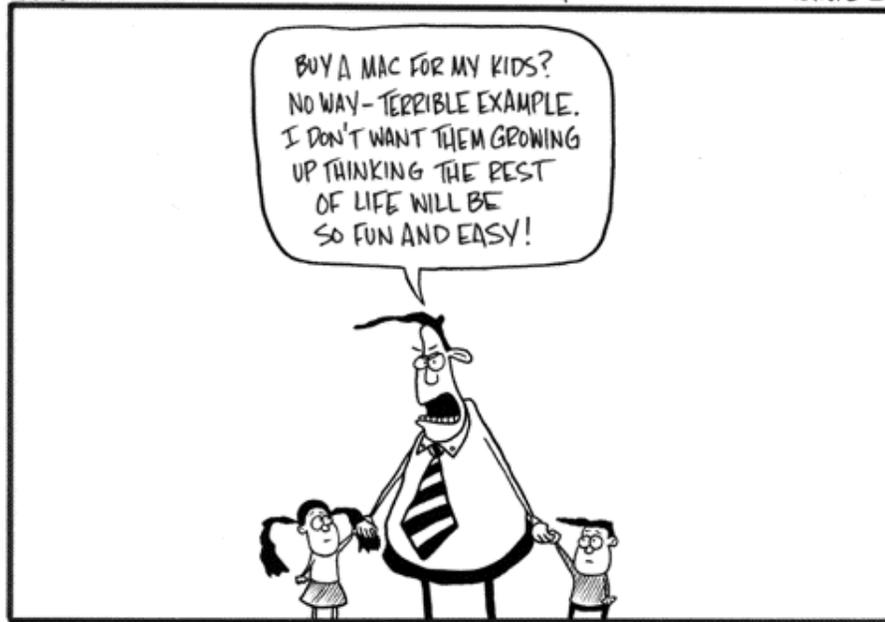
"...I repeatedly ran across teachers caught in a fog of delusion about what their students were actually accomplishing with this machinery. In the younger grades, students in class after class are spending days, to their teachers' great delight, mastering children's versions of PowerPoint, the ubiquitous business presentation product sold by Microsoft. Yet the work the students produce with these products is **stunningly superficial**. It's usually far less creative than what students used to do..."

"One of the most common selling points for computers in schools is to prepare youngsters for tomorrow's increasingly high-tech jobs. Strangely, this may be the computer evangelists' greatest hoax. **When business leaders talk about what they need from new recruits, they hardly mention computer skills**, which they find they can teach employees relatively easily on their own. Employers are most interested in what are sometimes called "soft" skills: a deep knowledge base and the ability to listen and communicate; to think critically and imaginatively; to read, write and figure, and other capabilities that schools are increasingly neglecting."

(Ed: Sounds like the exact point I have been making in Reason #10.)

This 2003-2004 [report](#) says, a pilot project in England using Apple computers resulted in "Improved knowledge retention; increased enthusiasm and motivation; improvements in collaborative work skills." *Sounds like a **real** good thing!*

Conclusion: In the overall scheme of things, for a prospective employee to have Windows experience is relatively unimportant.



For more on this subject, please read the informative website entitled [What Schools Should Do](#), plus Wes George's report about Apple's Vision For Education [Part 1](#) and [Part 2](#), [Frequently Asked Questions](#) by parents of college students, as well as Dr. Tim Hillman's editorial on [MacOS X In Education](#), and MacInTouch reader [reports](#) on the same subject. And this extensive [documentation](#) about using OSX in K-12 is superb.

So there are **many GOOD reasons** for schools **NOT** to use the same computers that businesses use. In fact, using Macs gives students the "horizon-broadening" opportunity to know and understand that there is an "alternative", and that (at some point in their life) they will then have the ability to decide for themselves which is the most applicable platform for the kind of computing that they would like to do. From the Mouths of Babes department comes this [Think Different](#) posting by a 14 year old. If educators can convey this understanding, a **very** worthwhile learning experience will have been accomplished.

Conclusion: standardize on the Mac platform throughout the school district – which will result in the lowest cost of operation. In a high school lab, set up a room full of Macs with Virtual PC on them, and offer a class on Windows.

This section's Haiku
(see the bottom of page 1 for more explanation):

***Serious error.
All shortcuts have disappeared.
Screen. Mind. Both are blank.***
